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ABSTRACT

University information systems are designed to make decisions easier and to provide good information for administrative tasks. Data do not by themselves produce better decisions, and more data can make agreement on issues more complicated. When collegial decisions are made, the precise impact of data and models is uncertain. When there is no strong value consensus, agreements on complex decisions are hard even with sophisticated data. Even when values are agreed upon, people see data differently. The decision-making process involving administrators and faculty becomes a cultural event and not a scientific exercise. Private higher education institutions have made great strides in the development and application of the data base decision process. A systematic data base is needed because of the many complexities that must be considered. Small miscalculations in a budget can amount to large sums of money. One of the prerequisites for any information system is that there be a will to study, analyze, plan, and compare. The primary benefit of data is providing information on choices for making decisions. (SW)

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THE COSTS AND BENEFITS OF INFORMATION : DATA-BASED DECISIONS AT THE PRIVATE INSTITUTION.

by Hans H. Jenny.

I. When I was contacted several months ago about participating in this interesting session, I was not quite sure how I would approach the topic assigned to us. At the time, I was thinking about a particular aspect of decision making, but I did not know whether my perhaps overly personal inclination would be of any interest here.

We have been working at The College of Wooster on a number of very modest projects, each designed to help here and there in making it easier to reach decisions or to provide us with reasonably good information for our various administrative tasks.

In the process of developing our varied data base and our increasingly participatory decision making structure, we have discovered what most of you probably knew beforehand : namely that data do not by themselves produce better decisions, that the more data you have the more complicated it becomes to reach agreement, and that you never seem to have the right kinds of data when the chips are down.

But these were not my main thoughts at the time. Foremost in my mind was the realization that, as our information system developed, human relations began to change as well. Now, it is of course dangerous to link these two types of events into an even implied causal relationship. But I believe that there is a connection and I may get back to it from time to time during the next few minutes.

II. Normally in a discussion of the costs and benefits of data-based decision processes we do not see references to human relations. We tend to be absorbed with inputs of money and of human effort, and we look for the results of decisions and hope that they are better than they would be without all that hard and expensive work that preceded them. This is fine and proper, but since there are some other dimensions, I thought it would be interesting to dwell on a few.

One of my concerns is how one responds to the question of how a given decision making process works and of how data are being used.

Those of us who are close to the "production" of data may be inclined to take one or the other of the following positions. Either we are convinced that the data we feed into the decision mill are useful, we believe that they make an impact, and we assume that the benefits of having them available outweigh the costs of producing them. Or we express our sense of frustration because we seem to notice that those who make decisions -- in committee, usually -- are doing so either without proper data or after ignoring those pieces of information which we have laid out so painstakingly for them. On this wave length we conclude that the costs really are not worth the bother.

There is, as in all such situations, a middle of the road position. But we seem to hear or read more often than not one or the other of the foregoing alternatives.

With each goes its own peculiar real or imagined human relations aspect. At one extreme this shows up in an almost arrogant professional self assurance by those who guard the holy grail of MIS. And at the other we seem to wallow in the ooze of self-pity because the guardian has been ignored or his advice not taken.

I came across an example of the first point of view in a recent draft of a paper submitted to a professional journal. The author had concluded that institutions using computer based decision models are more likely to cut their budgets, increase their teaching loads, and reduce their operating costs than colleges and universities who either are less adept in modeling or eschew the use of the computer altogether.

This conclusion is perhaps worth a few laughs all by itself, but the author went to a lot of trouble in an attempt at finding the necessary evidence. In addition to all the de rigueur statistical fireworks he sought responses from institutional representatives, especially in those instances where the statistics appeared to suggest a correlation between the data system and the cost reductions. And, of course, the institutional respondents in question perceived a very close fit between their computer models, their data systems, and their budget cutting ventures.

I do not doubt for one minute the sincerity of the researcher and of the respondents. I seriously doubt the veracity of their finding. In each instance, the budget making process included numerous persons and often it

required committee consensus. In some cases the decision making bodies were large and ungainly. In all cases, the respondents were part of the decision making process but not the primary decision makers. How did they know what influence the models in question had on each decision maker? It must be wonderful to see into the head of each participating person or to find in each head such a unanimity of view.

If there is one lesson that I have been learning over and over during the last few years at my own institution it is this : you can provide all the data you are capable of producing, you can do the most sophisticated computer tricks in the book, and you can present all the variations on a theme that time and money will allow, but in the end where collegial decisions are made, you really cannot be sure of the precise impact your data and models have made.

III. I cannot speak for other institutions, and I am not sure of how well I understand The College of Wooster. It has occurred to me, nevertheless, that it may be a good thing when decision makers act in spite of data and in opposition to what their models might suggest. I am inclined to believe that this happens less often than some of us claim. And when it happens, there perhaps is a good reason.

The article to which I referred a while ago also stated that the author believed the decision making processes in question were less political than rational because of computer data based modeling. Given this sort of attitude, we should cheer a faculty committee that comes up with something just for the hell of it.

It is important, I believe, to remember that there are serious limitations in much of our quantitative paraphernalia and that these limitations

often ignore the qualitative essence of the educational endeavor. Even our qualitative variables frequently denigrate the human and humane dimensions of our enterprise.

This has recently been acknowledged in the admissions area where we continue to use test scores and measurements that perpetuate a pernicious type of discrimination which parades in the disguise of standards of selectivity and academic quality.

But I do not wish to make a superficial argument. The limitations inherent in quantitative analysis as it is used in data based decision systems are partly limitations in the data proper. Whether data are numbers or other bits and pieces, before they can become truly useful they must be transformed into information. And information presupposes interpretation of data, of causal relationships, and of values.

In higher educational institutions, public and private, questions of value abound. As a matter of fact, they proliferate over such a vast arena of participants, that it is understandable why so many get lost in the shuffle. I believe that you have observed in your own institutions something like this : when there is no strong value consensus, agreements on complex decisions are hard to obtain even when we come armed with the most sophisticated data systems.

But even when the values come together, data systems are made up of images; that is, they are in the observer's eye a perception of her or his environment, lifestyle, interest, professional need, and experience. When we get together with our administrative and faculty colleagues in large and small institutions, the decision making process becomes a cultural event and not a scientific exercise.

We may deplore the uncouth noises that occasionally waft up from the pit -- we used to advise our friends not to sit in the front row when the rockettes did their high kick number -- but the reality in human decision making in our collegiate institutions cannot be wished away or substituted by rational decision models that ignore the human needs.

IV. Private colleges and universities have made great strides in the development and application of data based decision processes. When I say this, I sound trite and patronizing. You mean to say that they did not make their decision with information before all those new-fangled contraptions and our institutional research profession came along?

Of course they had information. But things were certainly simpler then. In a small private college, I recall the days when the Prexy could work his magic out of his hip pocket, so to speak.

We need the systematic data base because we are living in a more complex world. We also need it because the sums of money involved have become so big. Let us say that you are trying to balance the budget in a small college of roughly 2,000 students. The operating budget you must control will be in the neighborhood of $ 15,000,000. If you guess badly three years in a row by not more than 2 percent you have accumulated a deficit of $ 900,000.

Another even more dramatic illustration would be the following : as inflation pushes per student expenditures into the clouds, it takes fewer and fewer students to produce a given dollar impact. For instance, at a comprehensive fee of $ 4,500 a 50 FTE miscalculation costs $ 225,000; at $ 6,500 it would take fewer than 35 FTEs to produce the same result.

And with the improved data we often make better decisions than we could without them. Sometimes the decisions are not better, for we could not prove it one way or the other, but the data and the systems become an appropriate security blanket. Today you are more likely to be found negligent in your management if you cannot prove that you have touched every base. On the other hand, it has become quite fashionable to blame a given model and not the decision maker for coming up all lemons.

Perhaps the most obvious benefit, particularly of computer centered information systems, is the relative ease with which zillions of data bits can be juggled around. There certainly is economy in this at some point; as well as a point of diminishing returns we do not seem to have discovered.

Since so much of the data we churn around has dollar signs in front of it, we can under certain circumstances intimidate members of the decision making group. Statistical techniques of modest sophistication will accomplish the same result. I have seen vociferous debates stop cold in their tracks on the mere mention of double helix regression. Now what self-respecting English professor wants to appear ignorant when the junior Senator from Economica comes up with a gem such as this. Or when the vice president for finance indulges himself in cashflow analysis, fund accounting mysteries, and constant dollar compound total return payout. Its enough to make you feel inferior, so why not go along.

Thus, sweet revenge, when the topic shifts to things we understand, like learning quality parameters, peer group assimilation techniques, and collegiate calendars. Now you're cooking. Here we get into matters of educational principle and we stand four-square above mundane money considerations. That's when the collective bargaining committee moves into the breach with its

recommendation for an 11 percent salary increase and a stinging rebuke to the president, the dean, and a few others for ignoring the priorities that have made this institution great.

At which point the institutional research team ducks prudently into the background, pockets the higher salary checks, and returns to their data base in anticipation of better days ahead.

V. Is it their data base?

On a few occasions, I have held back developing a particular type of information, because I did not believe that we were ready as a group to tackle the issue. Costing is a point of reference.

I recall that in the quiet of my office, I began to work on unit cost data before we had our first computer. I discovered that our former Dean also had his private little system; he also had very precise teaching load data; and a 1952 registrar maintained grade record and admissions files that could be models of the genre. Since it did not seem to me that cost data were of such earthshaking importance, I took my figures to the Dean. That was the end of it, and the time was 1957.

Many years later I got into costing again. Only then I was forced to read a lot of new literature on the subject, most of which came down to this : find the retired Dean's filing cabinet, get out his teaching load data, your old figures, and go to work. The only trouble was, by then cost information was being viewed as a threat by much of our staff.

It was only four years ago that we bit the bullet and went public but very carefully. Now, of course, the cost data is seen as "theirs" rather

than "ours" -- "their" being the faculty -- and until we begin to suggest some nasty use for it, like closing down expensive courses in Greek and Latin or wiping out the Physics Major, we'll be doing alright.

Given the professionalization of the staff that must produce and maintain a college's data base, there is indeed a danger of polarization. Most small colleges seem to have handled this problem at least as well as the larger institutions. To the extent to which it is possible, certain critical elements of a modern data base should be developed in partnership with those who may be adversely affected by its use.

VI. Much has been made of the dollar cost that must be incurred if one wishes to implement an appropriate MIS. In smaller colleges there still is here and there a reluctance to invest adequate funds, but on the whole we have come a long way.

Internal as well as external information can sit unused, and one of the prerequisites for any information system is that there be a will to study, to analyze, to plan, and to compare. Since most management decisions involve choosing, one might take for granted that study of alternatives precede the actual decision.

But it takes analysis to make people aware that they have choices and what they are. In this I see perhaps the primary benefit of data : if it provides me with information on the choices I have it also enhances my freedom of action.

And it complicates my life : now I have to decide, since I have to choose one direction and reject the others. Frequently the fear of choosing is a reason why little is invested information system development. Sometimes

a certain arrogance of "we already know" brings the same reluctance. But when we look at our institutions of higher education today, we must be impressed with the widespread evidence of a willingness to learn.

There really is no special virtue in this; one should think that in an educational institution learning about the institution and about how to make it function better would be a most natural expectation and activity. Well, not really, but at least more so than yesterday. As the man said, when you are about to be hanged, it concentrates the mind.

VII. And, I guess, in a manner of speaking, that's what it is all about.

I do not mean to suggest that one should wait until the jig is up. But the purpose of data centered decision making is to help the collegiate community do its job better.

What this means must be determined by each institution, as each institution will decide how and with what means to attempt the task. The benefits of MIS are found in the extent to which the objective is being achieved.

The costs are in the achieving. Because achievement is an uncertain event, there are all manner of risks.

Is it true here as in the field of investment that, provided you succeed, the more risk you take the greater your reward?